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Hosted Payload Advances *from HPA*

About
HPA

Press
Releases

Forward to
a Colleague

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In this issue:

- [Message from HPA Chair Janet Nickloy](#)
- [HPA's Key Issues Workshop a Success Despite Limit on Government Travel](#)
- [HPA's First Congressional Hill Day – and a Preview of the Second](#)
- [What You Need to Know About HoPS](#)
- [Noted and Quoted](#)
- [About the National Space Transportation Policy](#)
- [Your 2014 HPA Executive Committee](#)
- [Other 2014 HPA Initiatives](#)
- [HPA Member News](#)

Message from the HPA Chair



In the March 2013 issue of the HPA newsletter, I sent my inaugural message as the Hosted Payload Alliance Chair. Our stated objective for 2013 was to focus on identifying, dissecting and resolving key issues. We set out to create government-industry forums to openly debate the issues and brainstorm solutions that satisfy the needs of both government and industry. So let's reflect on our progress in 2013 and then look ahead to what's in store for 2014.

Satellite 2013 kicked off the year with the HPA sponsoring a panel on "Considering Commercial Space Alternatives in Early Stages of the Acquisition Process." The panel discussion was vibrant and well attended with approximately 100 conference attendees.

The Space Symposium quickly followed in April where we hosted a full day government/industry "Hosted Payload Key Issues Workshop." Government travel restrictions threatened the workshop; however, with the support and encouragement from our government counterparts at U.S. Air Force Space Command, NASA and the U.S. Air Force Space and Missile Systems Center, we pressed forward with the assistance of VTC. With standing room only at our Colorado Springs base, augmented by satellite sites in Los Angeles and WDC, we heard key note addresses from Gen. Hyten, Col. Beidleman and Lori Garver, in addition to two deep-dive sessions led by HPA

members. We also held our annual board meeting to gather insights directly from the industry base. Overall, the workshop was a great success. The HPA then hosted a panel discussion for the mainstream NSS conference including Gen. Whelan, Doug Loverro and Chuck Beames. Their support of hosted payloads was compelling.

[Read more from Nickloy](#) including the National Defense Authorization Act for Fiscal Year 2014, the Implementation Directive for Better Buying Power 2.0 and what's ahead for HPA.

[Back to top.](#)

HPA's Key Issues Workshop at Space Symposium A Success Despite Limit on Government Travel

Despite anxiety concerning the effect of the recent government sequestration on attendance, the HPA proceeded as planned with its Key Issues Workshop April 8 at the Broadmoor Hotel during the Space Symposium in Colorado Springs, and the result was a better-than-expected turnout.

The format of the workshop demonstrated both industry's and the U.S. Government's ingenuity at finding cost-effective solutions in the face of budget cuts. Despite restrictions on travel, officers at the Air Force Space & Missile Systems Center at Los Angeles Air Force Base, and NASA officials at both headquarters in Washington, D.C., and the NASA Langley Research Center in Hampton, Virginia, were able to participate in a lively discussion together with the attendees onsite at the symposium by two-way video teleconference.

The program included keynote addresses by individuals who are leading the way in hosted payloads: Lt. Gen. John Hyten, who attended the workshop in person; NASA Deputy Administrator Lori Garver, addressing the audience from Washington, D.C.; and Col. Scott Beidleman, who addressed the audience from the Los Angeles Air Force Base.

The workshop facilitated open interaction between government and industry, tackling key issues that are potential obstacles for more widespread use of hosted payloads. The open discussion demonstrated that progress has been made over the past few years, and that industry will see more operational payloads hosted on commercial satellites in the future.

[Back to top.](#)

HPA's First Congressional Hill Day – and a Preview of the Second

HPA held an outreach event for Congressional members and staffers on July 24 in the Capitol Visitor Center. The event featured a facilitated panel of industry experts who each tackled a hosted payload related topic of interest to legislators.

The panel featured Janet Nickloy, Director of Strategy and Business Development at Harris Corporation; Dave Anhalt, then Vice President, U.S. Government Solutions at Space Systems/Loral (SSL) (Anhalt is currently Vice President and General Manager, Iridium PRIME); and Jim Simpson, Vice President, Missions & Programs, Boeing Space and Intelligence Systems. The panel was moderated by J.R. Jordan, Senior Manager, Strategy and Business Development, Raytheon Space and Airborne Systems.

Although a variety of discussion points was covered during the event, the connecting theme of the panelists' presentations was that hosted payloads are achievable and deserve further investigation, and the space industry stands ready to work with the U.S. Government in this worthy

endeavor.

[Back to top.](#)

Overview of the Hosted Payload Solutions (HoPS)

The Hosted Payload Office (HPO) issued an RFP for the Hosted Payload Solutions (HoPS) acquisition earlier this year. This acquisition aims to provide the Space and Missile Systems Center (SMC) and other government organizations with a capability for hosting government payloads on commercial spacecraft to meet mission objectives.

The award is expected in the first half of 2014 and will be a multiple-award indefinite-delivery indefinite-quantity contract that facilitates the matching and award of government payloads in development with commercial spacecraft on commercial timelines. The HoPS acquisition will procure a fully functioning on-orbit hosted payload system, integrated ground system equipment and interfaces to deliver payload data to the government end-user(s). [Read the full HoPS article.](#)

[Back to top.](#)

Noted and Quoted

Hosted Payloads Can Help Evolve USAF Space Acquisition

“Hosted payloads offer us another alternative to save up-front costs and to leverage the competitive and congested aspects of space. Because we are operating in such a crowded manifest, partnerships with both commercial companies and other nations will become increasingly important to access the spectrum we need. By reducing the size of our missions and riding on commercial or international hosts as payloads, we can multiply the opportunities we have to gain access to space.”

Lieutenant General Ellen M. Pawlikowski, Commander, U.S. Air Force Space & Missile Systems Center, ‘Space Acquisition Issues In 2013,’ Oct. 2013 issue of Air & Space Power Journal and reprinted in Nov. 2013 issue of MilSatMagazine

Successful CHIRP Mission Ends

“CHIRP proved the viability of commercially hosted OPIR (Overhead Persistent Infrared) payloads, and gave us tremendous insights into the applicability of wide field-of-view staring technology to our missile warning, missile defense, technical intelligence, and battlespace awareness mission. The sensor’s ability to provide continuous coverage within the field-of-view proved to be particularly valuable in understanding short duration infrared events. The knowledge gained from its successful operation will continue to contribute to the Air Force’s space modernization initiatives for years to come.

Lieutenant General Ellen M. Pawlikowski, Commander, U.S. Air Force Space & Missile Systems Center, quoted in an Air Force news release announcing the decommissioning of the Commercially Hosted Infrared Payload on Dec. 6, 2013, following 27 months of successful operation, during which all mission objectives were met.

The CHIRP sensor, designed and built by Leidos (formerly Science Applications International Corporation), was successfully launched Sept. 21, 2011, as a hosted payload on an SES commercial communications satellite built by the Orbital Sciences Corporation. CHIRP was designed for a one-year mission life. The payload completed its initial demonstration period in July

2012, and the contract was extended three times to conduct additional demonstrations employing wide field-of-view staring technology.

[Back to top.](#)

About the National Space Transportation Policy

From the “Fact Sheet: 2013 National Space Transportation Policy”

The National Space Transportation Policy the President signed on November 21 works to “ensure that the United States stays on the cutting edge by maintaining space transportation capabilities that are innovative, reliable, efficient, competitive, and affordable, and that support U.S. interests. The policy provides comprehensive guidance to all Federal Departments and Agencies on U.S. priorities and on roles and responsibilities with respect to space transportation issues and programs. It updates and replaces the 2004 U.S. Space Transportation Policy.”

Of major importance to HPA members, the Policy makes specific mention of hosted payloads among its bulleted list of key focus areas:

“More specifically, the policy: Encourages partnerships with private industry to put U.S. government instruments on non-governmental spacecraft, which will increase scientific and other capabilities, facilitate access to space, and save taxpayer dollars using arrangements known as “hosted payloads.”

[Back to top.](#)

Your 2014 HPA Executive Committee

HPA is pleased to introduce the incoming Board Officers for 2014. The Chair, Vice Chair, Treasurer and Secretary are elected annually by the Board of Directors. These Officers constitute the Executive Committee and carry out the directions and decisions of the HPA Board between its monthly meetings. [Learn more about the HPA officers.](#)

- **Chair - Janet Nickloy**, Vice President of Strategy and Business Development, National Systems business unit, Harris Government Communications Systems (GCS)
- **Vice Chair - Nicole Robinson**, Corporate Vice President, Communications and Government Affairs, SES Government Solutions
- **Treasurer - J. R. Jordan**, Senior Manager of Strategy and Business Development, Raytheon Space & Airborne Systems
- **Secretary - Col. David A. Anhalt**, Vice President and General Manager, Iridium PRIME

[Back to top.](#)

Other Initiatives for 2014

In addition to the industry events outlined elsewhere in this newsletter, the HPA will have a participatory role in other events taking place throughout 2014. HPA traditionally organizes a panel at Satellite, which will take place March 11-13, 2014, in Washington, D.C.; the Space Symposium May 19-22, 2014 in Colorado Springs, where the Annual Business Meeting will be held; and will hold a panel at the Inter Astronautical Congress in Sept 29 – Oct 3, 2014 in Toronto.

[Back to top.](#)

Member News in 2013

Northrop Grumman

Northrop Grumman in 2013 delivered two payloads that will be hosted on government-owned satellites to bring next-generation protected, Extremely High Frequency (EHF) communications to users in the north polar region (above 65° North).

Developed for the U.S. Air Force's Enhanced Polar System, the payloads efficiently leverage hardware and software designs Northrop Grumman originally developed for Advanced EHF protected military communication satellites. Launch is currently set for 2018.

Harris Corporation

Harris Corporation was honored with an "R&D 100" award for developing a revolutionary, reconfigurable spaceborne radio as part of a NASA-led team. The awards, presented annually by *R&D Magazine* and billed as the "Oscars of Innovation", recognize the 100 most technologically significant innovations from across the United States.

Space-based remote data collection has accelerated rapidly in recent years, requiring greater bandwidth and reliability to relay the data. Future missions by NASA and other government and commercial organizations will rely on Ka-band frequency technologies to provide high-speed broadband connectivity for data, digital video and audio transmission. The Harris/NASA team developed the first space-qualified, software-defined radio (SDR) that operates in the high-capacity Ka-band frequency range. It sets the stage for replacing unique fixed-function mission radios with reprogrammable SDRs offering in-orbit reconfiguration, multi-waveform operation, and fast deployment.

The Harris SDR is operational onboard the International Space Station, where it has been successfully reprogrammed and demonstrated high-speed data transmissions through the NASA Tracking Data Relay Satellite system. The Harris AppSTAR™ reconfigurable payload architecture significantly reduced the development cost and schedule of the SDR. AppSTAR's software-defined architecture enables ground mission planners to reconfigure and change the functionality of the radio during a mission by uploading or modifying software.

The effort was a cooperative program between Harris and the NASA Glenn Research Center. "R&D 100" award winners are selected by an independent judging panel and the editors of *R&D Magazine*.

SSL

Space Systems/Loral (SSL) continues to work with NASA Goddard Space Flight Center to accommodate a Laser Communications Relay Demonstration (LCRD) on a commercial satellite as a hosted payload. Last fall, SSL reported that it successfully completed the important Preliminary Design Review (PDR) process and was given the authorization to finalize the design for accommodating the LCRD payload on its 1300 satellite bus.

Laser communications technology may provide next generation capability for NASA exploration missions, and it may also hold significant benefits for future commercial satellite communications.

Sponsored by NASA's Space Technology Mission Directorate and Human Exploration and Operations Mission Directorate, LCRD is a technology demonstration that combines commercial and government developments. By hosting the LCRD payload on a commercial communications satellite built by SSL, this demonstration will be an enduring test bed that helps transition optical communications technology into operation. As the optical modules and ground stations for LCRD are being developed, SSL is working with its commercial customers to identify an appropriate host satellite for the demonstration.

Boeing

The first Boeing Inmarsat-5 satellite was launched Dec. 8 and sent signals from orbit, the initial step to establishing Global Xpress, the world's first globally available high-speed mobile broadband

service for government and commercial users.

“This launch is noteworthy for two reasons: It is the first in the Boeing-built Inmarsat-5 series of four high-power satellites, and our Boeing Commercial Satellite Services unit has been actively marketing its military and commercial Ka-band capacity to government users,” said Craig Cooning, chief executive officer of Boeing Satellite Systems International.

Inmarsat-5 satellites carry two payloads, one for military use and one for commercial use.

Lockheed Martin

Lockheed Martin delivered the third of four highly elliptical earth orbit (HEO) hosted satellite payloads contracted by the U.S. Air Force as part of the Space Based Infrared System (SBIRS). The SBIRS program delivers timely, reliable and accurate missile warning and infrared surveillance information to the President of the United States, the Secretary of Defense, combatant commanders, the intelligence community and other key decision makers. The system enhances global missile launch detection capability, supports the nation's ballistic missile defense system, expands the country's technical intelligence gathering capacity and bolsters situational awareness for warfighters on the battlefield.

The SBIRS architecture includes a resilient mix of satellites in geosynchronous earth orbit (GEO), hosted payloads in HEO orbit, and ground hardware and software. The integrated system supports multiple missions simultaneously, while providing robust performance with global, persistent coverage.

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